

Kramer Electronics, Ltd.



USER MANUAL

Model:

TP-330FW

FireWire Range Extender/ HUB

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1 Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront the video, audio, presentation, and broadcasting professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 1,000-plus different models now appear in 11 groups¹ that are clearly defined by function.

Congratulations on purchasing your Kramer TOOLS **TP-330FW FireWire Range Extender/HUB** which is ideal for:

- Digital video production, editing studios and digital video live broadcasting
- PC FireWire port extensions and long cable drivers

The package includes the following items:

- **TP-330FW FireWire Range Extender/HUB**
- Power adapter (12V DC output)
- This user manual²
- Mounting bracket

2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual
- Use Kramer high performance, high resolution cables³

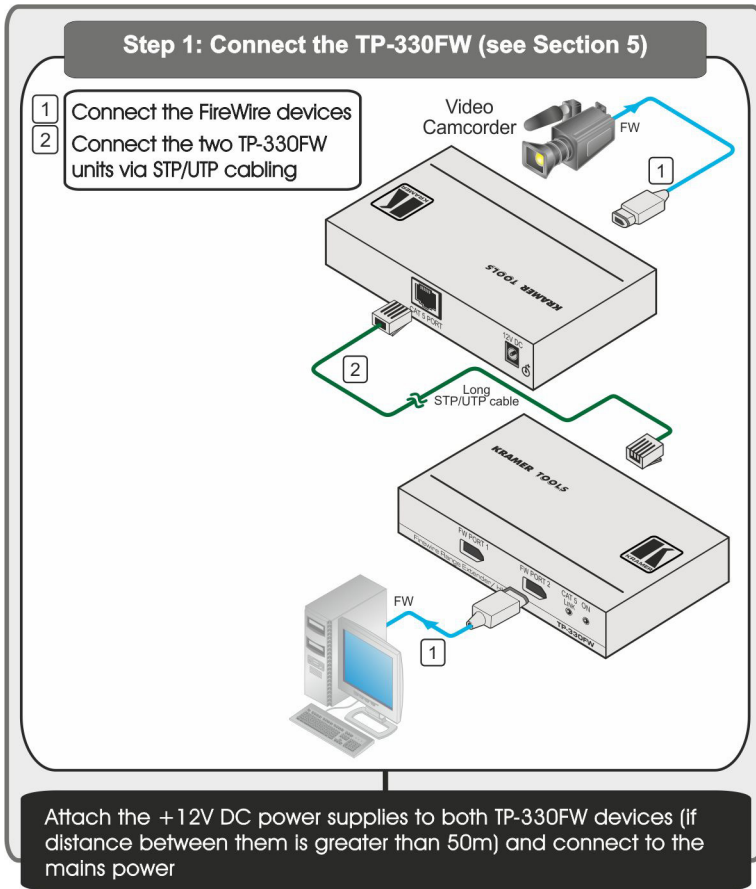
1 GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Matrix Switchers; GROUP 3: Control Systems; GROUP 4: Format/Standards Converters; GROUP 5: Range Extenders and Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scan Converters and Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Accessories and Rack Adapters; GROUP 11: Sierra Products

2 Download up-to-date Kramer user manuals from <http://www.kramerelectronics.com>

3 The complete list of Kramer cables is available from <http://www.kramerelectronics.com>

2.1 Quick Start

This quick start chart summarizes the basic setup and operation steps.



3 Overview

The high quality **Kramer TOOLS™ TP-330FW FireWire Range Extender/HUB** is a truly unique product that lets you extend the standard 4.5m (13.5ft) FireWire range to 80m (262ft) with speeds of up to 400Mbps (see [Figure 2](#)) using common, inexpensive TP cable.

The **TP-330FW FireWire Range Extender/HUB** is based on FireWire which:

- Is a serial bus standard¹ that enables quick, universal interfacing between digital video, audio and data, and computer hardware items²
- Is simple to use and operates independently of the host system
- Supports Plug and Play³, hot swapping⁴ and isochronous⁵ and asynchronous applications

In particular, the **TP-330FW**:

- Supports the provisions of the IEEE 1394a-2000 and 1394-1995 Standard for High Performance 1394 Serial Bus up to 400Mbps
- Enables 1394 400Mbps signals to be transmitted and received over extended distances on twisted pair cable
- Includes built-in protection from electrostatic discharge (ESD)⁶, by suppressing all transient high voltages to allowed levels

To achieve the best performance:

- Avoid interference from neighboring electrical appliances that may adversely influence signal quality
- Position your **TP-330FW** away from moisture, excessive sunlight, and dust

3.1 Shielded Twisted Pair and Unshielded Twisted Pair

Standard STP or UTP cable should be used. Do not use skew-free cable.

Although Unshielded Twisted Pair (UTP) cable might be preferred for long range applications, UTP cable should be installed as far as possible from electric cables, motors, and so on, as these devices tend to create electromagnetic interference.

However, since the use of UTP cable might not conform to electromagnetic standards, Kramer does not commit to meeting the standard with UTP cable.

1 Originally developed by Apple™ and published as IEEE 1394 by the Institute of Electrical and Electronics Engineers

2 Hardware items include digital cameras, computers, printers, VCRs, CD-ROMs, hard disks, scanners, and graphic cards

3 When a device is added or removed, the 1394 bus re-enumerates and configures automatically

4 You can connect and disconnect inputs and outputs dynamically, without having to restart the PC or cycle power

5 Video/audio applications require constant transfer rates, which the serial bus provides by supporting isochronous transfers

6 Often when connecting a "live" DV source to a receptor, an electrical potential difference or any other element creating a high voltage (such as ESD or a live chassis) may permanently damage one or both of the connected devices. This high voltage may be seen as a spark occurring at the instant of connection, or may not be seen at all, but nevertheless can result in costly damage

3.2 About the Power Connect™ Feature


The Power Connect™ feature here means that only one unit in a system, the transmitter or receiver, needs to be connected to a power source when the devices are within 50m (164ft) of each other. The Power Connect™ feature applies as long as the cable can carry power and the distance does not exceed 50m on standard CAT 5 cable. For longer distances, heavy gauge cable should be used¹.

3.3 Recommendations for Achieving the Best Performance

To achieve the best performance:

Connect only good quality connection cables, thus avoiding interference, deterioration in signal quality due to poor matching and elevated noise-levels (often associated with low quality cables)

Avoid interference from neighboring electrical appliances and position your **TP-330FW** away from moisture, excessive sunlight and dust

	Caution: No operator serviceable parts inside unit
	Warning: Use only the Kramer Electronics input power wall adapter that is provided with the unit
	Warning: Disconnect power and unplug unit from wall before installing or removing the device or servicing unit

¹ CAT 5 cable is still suitable for the video/audio transmission, but not for feeding the power at these distances

4 Defining the TP-330FW FireWire Range Extender/Hub

[Figure 1](#) and [Table 1](#) define the **TP-330FW FireWire Range Extender/HUB**.

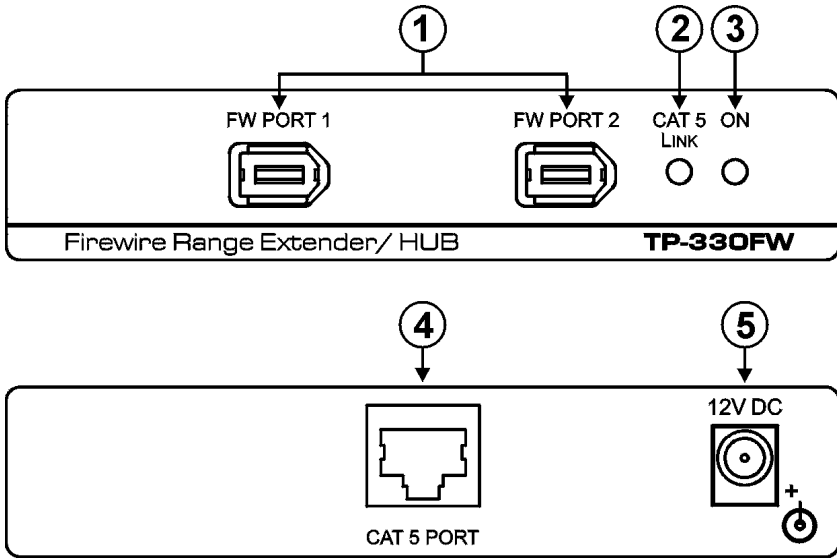


Figure 1: TP-330FW FireWire Range Extender/Hub Front and Rear Panels

Table 1: TP-330FW FireWire Range Extender/Hub Front and Rear Panel Features

#	Feature	Function
1	FW PORT 1	FireWire Ports ¹ Connect to the FireWire device
	FW PORT 2	
2	CAT 5 LINK LED	Lights green when the TP link is established
3	ON LED	Lights green when the unit is powered on
4	CAT 5 PORT	Connect to the CAT 5 PORT on the second TP330FW via STP cable
5	12V DC	Connect to +12V DC power adapter, center pin positive

¹ Only one FireWire device can be active at a time

5 Connecting FireWire Devices via Two TP-330FW Units

To connect two FireWire devices via two TP-330FW units over an extended distance as shown in the example in [Figure 2](#):

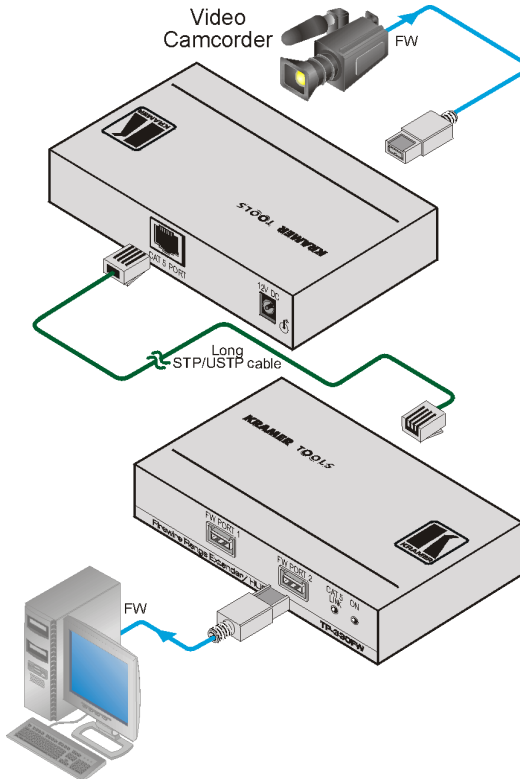


Figure 2: Connecting FireWire Devices via Two TP-330FW Units

1. On the first **TP-330FW** connect the FireWire device (for example, a video camcorder) to FW PORT 1 or FW PORT 2.
2. On the second **TP-330FW** connect the FireWire device (for example, a computer workstation) to FW PORT 1 or FW PORT 2.
3. Connect the two **TP-330FW** units together via the CAT 5 PORTs on the rear panel using STP/UTP cable with a maximum length of 100m (328ft).
4. Connect the first 12V DC power adapter to the first **TP-330FW** and to the mains supply.
5. If more than 50m (164ft) away from the first **TP-330FW**—connect the second 12V DC power adapter to the second **TP-330FW** and to the mains supply.

On both **TP-330FW** units:

- The ON LEDs light green indicating that they are receiving power —and—
- The CAT 5 LINK LEDs light green indicating that a CAT 5 link has been established between the units

Notes:

- You can connect two FireWire devices simultaneously to a **TP-330FW**, however, only one device can be active at a time
- There is no need to install the Kramer **PT-1FW DV Line Protector** on the STP/UTP as the **TP-330FW** already contains built-in line protection
- You can connect devices with 1394b (FireWire 800) bilingual interfaces at speeds of up to 400Mbps. The FireWire cable used must have a bilingual connector on one side and a 1394a 6-pin connector on the other side

6 Wiring the TP LINE IN/LINE OUT RJ-45 Connectors

[Table 2](#) and [Figure 3](#) define the TP RJ-45 wiring that is different to the standard EIA/TIA 568B wiring. When using STP cable, connect/solder the cable shield to the RJ-45 connector shield.

Table 2: Twisted Pair Cable Wiring

PIN	Wire Color	PIN
1	Green/White	7
2	Green	8
3	Orange/White	3
4	Blue	4
5	Blue/White	5
6	Orange	6
7	Brown/White	1
8	Brown	2

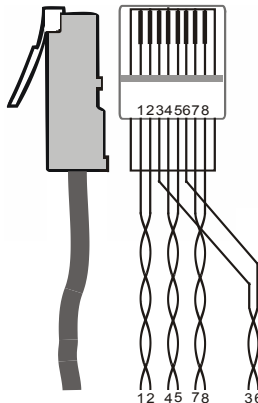


Figure 3: UTP Connector

7 Technical Specifications

[Table 3](#) lists the technical specifications of the **TP-330FW**.

Table 3: Technical Specifications¹ of the TP-330FW FireWire Range Extender/Hub

PORTS:	2 FireWire ports on 6-circuit FireWire 400 connectors 1 STP/UTP port on an RJ-45 connector
TRANSFER RATE:	400Mbps
IEEE-1394 STANDARDS:	IEEE 1394a-2000, IEEE 1394-1995 @ up to 400Mbps
ESD LINE PROTECTION:	IEC 61000-4-2 (ESD) 15kV (air), 8kV (contact), IEC 61000-4-5 (Lightning) 12A (8/20us), and IEC 61000-4-4 (EFT) 40A (5/50ns)
POWER SOURCE:	12 VDC, 60mA
DIMENSIONS:	12cm x 6.9cm x 2.4cm (4.7" x 2.7" x 0.9") W, D, H
WEIGHT:	0.4kg (0.9lbs) approx.
ACCESSORIES:	Power supply, mounting bracket

¹ Specifications are subject to change without notice

LIMITED WARRANTY

We warrant this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for seven years from the date of the first customer purchase.

WHO IS PROTECTED?

Only the first purchase customer may enforce this warranty.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by us or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a dealer is authorized, please contact Kramer at one of the agents listed in the Web site www.kramerelectronics.com.
2. Any product, on which the serial number has been defaced, modified or removed, or on which the WARRANTY VOID IF TAMPERED sticker has been torn, reattached, removed or otherwise interfered with.
3. Damage, deterioration or malfunction resulting from:
 - i) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
 - ii) Product modification, or failure to follow instructions supplied with the product
 - iii) Repair or attempted repair by anyone not authorized by Kramer
 - iv) Any shipment of the product (claims must be presented to the carrier)
 - v) Removal or installation of the product
 - vi) Any other cause, which does not relate to a product defect
 - vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.
3. Shipping charges.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on you product, you must take or ship it prepaid to any authorized Kramer service center.
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).
3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

EXCLUSION OF DAMAGES

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or:
2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from place to place.

NOTE: All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.

This equipment has been tested to determine compliance with the requirements of:

EN-50081:	"Electromagnetic compatibility (EMC); generic emission standard. Part 1: Residential, commercial and light industry"
EN-50082:	"Electromagnetic compatibility (EMC) generic immunity standard. Part 1: Residential, commercial and light industry environment".
CFR-47:	FCC* Rules and Regulations: Part 15: "Radio frequency devices Subpart B. Unintentional radiators"

CAUTION!

■ Servicing the machines can only be done by an authorized Kramer technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.

■ Use the supplied DC power supply to feed power to the machine.

■ Please use recommended interconnection cables to connect the machine to other components.

* FCC and CE approved using STP cable (for twisted pair products)



For the latest information on our products and a list of Kramer distributors, visit our Web site www.kramerelectronics.com where updates to this user manual may be found. We welcome your questions, comments and feedback.



Caution

Safety Warning:

Disconnect the unit from the power supply before opening/servicing.



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